

REMARKS

Claims 1 through 84 are currently pending in the application.

This amendment is in response to the Final Office Action of September 8, 2006.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on Doan (U.S. Patent Application Publication No. 2005/0167798 A1)

Claims 1, 11, 15, 19, 22, 32, 34, 36, 40, 41, 42, 43, 57, 61, 62, 63, 64, 74, 76, 78, 82, 83, and 84 were rejected under 35 U.S.C. § 102(b) as being anticipated by Doan (U.S. Patent Application Publication No. 2005/0167798 A1).

Applicants assert that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

After carefully considering the cited prior art, the rejections, and the Examiner's comments, Applicants have amended the claimed invention to clearly distinguish over the cited prior art.

Applicants assert that all words in a claim must be considered in judging the patentability of that claim. *In re Wilson*, 424 F.2d 981, 165 USPQ 494 (CCPA 1970).

Applicants assert that apparatus must be distinguished from the prior art in terms of structure. Applicants further assert that there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). Applicants assert that claim language such as "and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a portion of the inactive surface of the semiconductor die distributing the forces of the

semiconductor die therearound' or "at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die" are structural limitations regarding the claimed inventions of presently amended independent claims 1 and 22, not functional limitations. Applicants assert that such claim limitations clearly limits the structure of the apparatus and must be considered regarding the patentability of the claimed inventions of presently amended independent claims 1, and 22.

Applicants assert that it should be noted that the claimed inventions of independent claims 43 and 64 are methods, not articles of manufacture. Applicants assert that as claims 43 and 64 are method claims there are no functional limitations that are not to be considered in light of any cited prior art.

Applicants assert that by not considering language of independent claims 1, 22, 43, and 64, any rejection of such claimed inventions under 35 U.S.C. § 102(e) is improper because the cited prior art cannot and does not describe each and every element in as complete detail as is contained in the claim, rather the cited prior art only describes some of the elements in some detail as contained in the claim only when claim language is not considered. Therefore, Applicants assert that the rejection of independent claims 1, 22, 43, and 64 based upon 35 U.S.C. § 102(e) as being anticipated by the Doan reference is improper because the Doan reference does not describe each and every element of the claimed inventions in as complete detail as contained in the claims.

Applicants assert that the Doan reference does not and cannot anticipate the claimed inventions of presently amended independent claims 1, 22, 43, and 64 under 35 U.S.C. § 102(e) because the Doan reference does not identically describe, either expressly or inherently, each and every element of the claimed inventions in as complete detail as contained in the claims. Applicants assert that the Doan reference does not identically describe the elements of the claimed inventions of presently amended independent claims 1, 22, 43, and 64 calling for "the semiconductor die having an active surface, an inactive surface, at least one circuit, at least one bond pad formed on a portion of the active surface and connected to the at least one circuit, at

least one bond pad formed on a portion of the inactive surface of the semiconductor die connected to a circuit, and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a portion of the inactive surface of the semiconductor die distributing the forces of the semiconductor die therearound”, “the semiconductor die having an active surface, an inactive surface and at least one circuit, the semiconductor die including at least one bond pad formed on a portion of the active surface thereof connected to the at least one circuit, at least one bond pad formed on the inactive surface of the semiconductor die connection to a circuit of the semiconductor die, and at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”, “forming an area of metal on a surface of the semiconductor die free of connection to a circuit of the semiconductor die”, “performing one of decreasing stress acting on the surface of the semiconductor die by placing at least one bond pad on an inactive surface of the semiconductor die causing distributing of the forces therearound and protecting at least a portion of the semiconductor die” and “performing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”. Applicants assert that the Doan reference contains no description whatsoever of any such elements of the invention in such detail. Applicants assert that the Doam reference does not even use such terms therein. Therefore, presently amended independent claims 1, 22, 43, and 64 are allowable as well as the dependent claims therefrom. Applicants further assert that as presently amended independent claims 43 and 64 are method claims, not article of manufacture claims, the Doan reference does not identically describe any of the

affirmative acts of the methods thereof. Applicants assert that the Doan reference has no such description whatsoever. Therefore, Applicants assert that any rejection of claims 43 and 64 is improper under 35 U.S.C. § 102(e) because the Doan reference cannot identically describe the same invention as set forth in claims 43 and 64.

Anticipation Rejection Based on Fang (U.S. Patent Application Publication No. 2003/0127717 A1)

Claims 1, 2, 5 through 9, 12, 20 through 23, 26 through 30, 33, 41, 43, 44, 46, 49 through 53, 55, 62, 64, 65, 68 through 72, and 75 were rejected under 35 U.S.C. § 102(b) as being anticipated by Fang (U.S. Patent Application Publication No. 2003/0127717 A1).

Applicants assert that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

After carefully considering the cited prior art, the rejections, and the Examiner's comments, Applicants have amended the claimed invention to clearly distinguish over the cited prior art.

Applicants assert that all words in a claim must be considered in judging the patentability of that claim. *In re Wilson*, 424 F.2d 981, 165 USPQ 494 (CCPA 1970).

Applicants assert that apparatus must be distinguished from the prior art in terms of structure. Applicants further assert that there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). Applicants assert that claim language such as "and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a portion of the inactive surface of the semiconductor die distributing the forces of the

semiconductor die therearound’ or “at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die” are structural limitations regarding the claimed inventions of presently amended independent claims 1 and 22, not functional limitations. Applicants assert that such claim limitations clearly limits the structure of the apparatus and must be considered regarding the patentability of the claimed inventions of presently amended independent claims 1, and 22.

Applicants assert that it should be noted that the claimed inventions of independent claims 43 and 64 are methods, not articles of manufacture. Applicants assert that as claims 43 and 64 are method claims there are no functional limitations that are not to be considered in light of any cited prior art.

Applicants assert that by not considering language of independent claims 1, 22, 43, and 64, any rejection of such claimed inventions under 35 U.S.C. § 102(b) is improper because the cited prior art cannot and does not describe each and every element in as complete detail as is contained in the claim, rather the cited prior art only describes some of the elements in some detail as contained in the claim only when claim language is not considered. Therefore, Applicants assert that the rejection of independent claims 1, 22, 43, and 64 based upon 35 U.S.C. § 102(e) as being anticipated by the Fang reference is improper because the Fang reference does not describe each and every element of the claimed inventions in as complete detail as contained in the claims.

Applicants assert that the Fang reference does not and cannot anticipate the claimed inventions of presently amended independent claims 1, 22, 43, and 64 under 35 U.S.C. § 102 because the Fang reference does not identically describe, either expressly or inherently, each and every element of the claimed inventions in as complete detail as contained in the claims. Applicants assert that the Fang reference does not identically describe the elements of the claimed inventions of presently amended independent claims 1, 22, 43, and 64 calling for “the semiconductor die having an active surface, an inactive surface, at least one circuit, at least one bond pad formed on a portion of the active surface and connected to the at least one circuit, at

least one bond pad formed on a portion of the inactive surface of the semiconductor die connected to a circuit, and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a portion of the inactive surface of the semiconductor die distributing the forces of the semiconductor die therearound”, “the semiconductor die having an active surface, an inactive surface and at least one circuit, the semiconductor die including at least one bond pad formed on a portion of the active surface thereof connected to the at least one circuit, at least one bond pad formed on the inactive surface of the semiconductor die connection to a circuit of the semiconductor die, and at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”, “forming an area of metal on a surface of the semiconductor die free of connection to a circuit of the semiconductor die”, “performing one of decreasing stress acting on the surface of the semiconductor die by placing at least one bond pad on an inactive surface of the semiconductor die causing distributing of the forces therearound and protecting at least a portion of the semiconductor die” and “performing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”. Applicants assert that the Fang reference contains no description whatsoever of any such elements of the invention. Therefore, presently amended independent claims 1, 22, 43, and 64 are allowable as well as the dependent claims therefrom. Applicants further assert that as presently amended independent claims 43 and 64 are method claims, not article of manufacture claims, the Fang reference does not identically describe any of the affirmative acts of the methods thereof. Applicants assert that the Fang reference has no such

description whatsoever. Therefore, Applicants assert that any rejection of claims 43 and 64 is improper under 35 U.S.C. § 102(e) because the Fang reference cannot identically describe the same invention as set forth in claims 43 and 64.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on Fang (U.S. Patent Application Publication No. 2003/0127717 A1) and Further in View of Doan (U.S. Patent Application Publication No. 2005/0167798 A1)

Claims 10, 13, 14, 31, 35, 54, 56, and 77 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fang (U.S. Patent Application Publication No. 2003/0127717 A1), as applied to claims 1, 22, 43, and 64 above, and further in view of Doan (U.S. Patent Application Publication No. 2005/0167798 A1). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants assert that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

Applicants assert that any combination of the Fang reference and the Doan reference cannot and does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1, 22, 43, and 64 because any combination of the cited prior art does not teach or suggest all the claim limitations. Applicants assert that any combination of the Fang reference and the Doan reference does not teach or suggest the claim limitations of presently amended independent claims 1, 22, 43, and 64 calling for "the semiconductor die having an active surface, an inactive surface, at least one circuit, at least one bond pad formed on a portion of the active surface and connected to the at least one circuit, at least one bond pad formed on a portion of the inactive surface of the semiconductor die

connected to a circuit, and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a portion of the inactive surface of the semiconductor die distributing the forces of the semiconductor die therearound”, “the semiconductor die having an active surface, an inactive surface and at least one circuit, the semiconductor die including at least one bond pad formed on a portion of the active surface thereof connected to the at least one circuit, at least one bond pad formed on the inactive surface of the semiconductor die connection to a circuit of the semiconductor die, and at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”, “forming an area of metal on a surface of the semiconductor die free of connection to a circuit of the semiconductor die”, “performing one of decreasing stress acting on the surface of the semiconductor die by placing at least one bond pad on an inactive surface of the semiconductor die causing distributing of the forces therearound and protecting at least a portion of the semiconductor die” and “performing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”. Applicants assert that neither the Fang reference nor the Doan reference nor any combination of the Fang reference and Doan reference contains any teaching or suggestion whatsoever of any such claim limitations of the invention. Therefore, presently amended independent claims 1, 22, 43, and 64 are allowable as well as the dependent claims therefrom.

Obviousness Rejection Based on Fang (U.S. Patent Application Publication No. 2003/0127717 A1) and Further in View of Chu et al. (U.S. Patent Application Publication No. 2004/0099961 A1)

Claims 3, 4, 24, 25, 47, 48, 66, 67, and 73 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fang (U.S. Patent Application Publication No. 2003/0127717 A1), as applied to claims 1, 22, 43, and 64 above, and further in view of Chu et al. (U.S. Patent Application Publication No. 2004/0099961 A1). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants assert that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

Applicants assert that any combination of the Fang reference and the Chu et al. reference cannot and does not establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1, 22, 43, and 64 because any combination of the cited prior art does not teach or suggest all the claim limitations. Applicants assert that any combination of the Fang reference and the Chu et al. reference does not teach or suggest the claim limitations of presently amended independent claims 1, 22, 43, and 64 calling for "the semiconductor die having an active surface, an inactive surface, at least one circuit, at least one bond pad formed on a portion of the active surface and connected to the at least one circuit, at least one bond pad formed on a portion of the inactive surface of the semiconductor die connected to a circuit, and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a

portion of the inactive surface of the semiconductor die distributing the forces of the semiconductor die therearound”, “the semiconductor die having an active surface, an inactive surface and at least one circuit, the semiconductor die including at least one bond pad formed on a portion of the active surface thereof connected to the at least one circuit, at least one bond pad formed on the inactive surface of the semiconductor die connection to a circuit of the semiconductor die, and at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”, “forming an area of metal on a surface of the semiconductor die free of connection to a circuit of the semiconductor die”, “performing one of decreasing stress acting on the surface of the semiconductor die by placing at least one bond pad on an inactive surface of the semiconductor die causing distributing of the forces therearound and protecting at least a portion of the semiconductor die” and “performing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”. Applicants assert that neither the Fang reference nor the Chu et al. reference nor any combination of the Fang reference and Chu et al. reference contains any teaching or suggestion whatsoever of any such claim limitations of the invention. Therefore, presently amended independent claims 1, 22, 43, and 64 are allowable as well as the dependent claims therefrom.

Obviousness Rejection Based on Doan (U.S. Patent Application Publication No. 2005/0167798 A1) and Further in View of Kuo et al. (U.S. Patent Application Publication No. 2005/0121804 A1)

Claims 16 through 18, 37 through 39, 45, 58 through 60, and 79 through 81 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Doan (U.S. Patent Application Publication No. 2005/0167798 A1), as applied to claims 1, 22, 43, and 64 above, and further in view of Kuo

et al. (U.S. Patent Application Publication No. 2005/0121804 A1). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants assert that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

Applicants assert that Applicants assert the Doan reference is prior art under 35 U.S.C. § 103 to the claimed inventions of presently amended independent claims 1, 22, 43, and 64 because at the time of the invention of the present application the Doan reference and the present application were commonly owned by Micron Technology, Inc., the Assignment of the Doan reference being recorded at Reel/ Frame 014946/0494 while the Assignment of the present application is recorded at Reel/Frame 015106/0921, and the Doan reference is only available as prior art under the provisions of 35 U.S.C. § 102(e)/103, not 35 U.S.C. § 102(a) or 102(b). See MPEP § 706.02(I).

Applicants assert that the Kuo et al. reference fails to to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed inventions of presently amended independent claims 1, 22, 43, and 64 because the Kuo et al. reference does not teach or suggest all the claim limitations of presently amended independent claims 1, 22, 43, and 64, Applicants assert that the Kuo et al. reference does not teach or suggest the claim limitations of presently amended independent claims 1, 22, 43, and 64 calling for “for “the semiconductor die having an active surface, an inactive surface, at least one circuit, at least one bond pad formed on a portion of the active surface and connected to the at least one circuit, at least one bond pad formed on a portion of the inactive surface of the semiconductor die connected to a circuit, and at least one additional bond pad free of connection to any circuit formed on one of the active surface semiconductor die and inactive surface of the semiconductor die providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor

die, lowering stress of a portion of the semiconductor die, and protecting a portion of the semiconductor die by placing the at least one additional bond pad on a portion of the inactive surface of the semiconductor die distributing the forces of the semiconductor die therearound”, “the semiconductor die having an active surface, an inactive surface and at least one circuit, the semiconductor die including at least one bond pad formed on a portion of the active surface thereof connected to the at least one circuit, at least one bond pad formed on the inactive surface of the semiconductor die connection to a circuit of the semiconductor die, and at least one other bond pad formed on a portion of the inactive surface providing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, and lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”, “forming an area of metal on a surface of the semiconductor die free of connection to a circuit of the semiconductor die”, “performing one of decreasing stress acting on the surface of the semiconductor die by placing at least one bond pad on an inactive surface of the semiconductor die causing distributing of the forces therearound and protecting at least a portion of the semiconductor die” and “performing at least one of lowering stress of a portion of the semiconductor die, protecting a portion of the semiconductor die, lowering stress of a portion of the semiconductor die by placing the at least one bond pad on a portion of the inactive surface of the semiconductor die distributing the forces therearound, and protecting a portion of the semiconductor die”. The Kuo et al. reference only teaches or suggests the use of a passivation layer. Therefore, presently amended independent claims 1, 22, 43, and 64 are allowable as well as the dependent claims therefrom.

Applicants request entry of this amendment for the following reasons;

The amendment is timely filed.

The amendment places the application in condition for allowance.

The amendment does not require any further search or consideration.

Applicants submit that claims 1 through 84 are clearly allowable over the cited prior art.

Applicants request the entry of this amendment, allowance of claims 1 through 84, and the case passed for issue.

Respectfully submitted,



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